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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 29311-2020

**Electrical insulating materials and systems--AC voltage
endurance evaluation**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 29311-2012 "General Principles of AC Voltage Durability Evaluation of Electrical Insulation Materials", and GB/T 29311-

Compared with.2012, the main technical changes are as follows.

- Modify the "Scope" (see Chapter 1, Chapter 1 of the.2012 edition);
- Modify the "normative references" (see Chapter 2, Chapter 2 of the.2012 edition);
- Modified the definition of the terms "voltage durability" and "lifetime" (see 3.1.1 and 3.1.2,.2012 editions 3.1.1 and 3.1.2);
- Removed the term "electrical life" (see 3.1.3 of the.2012 edition);
- Added the symbol "alpha" (see 3.2);
- Removed the symbols "ES, ni, tp0, nu" (see 3.2 in the.2012 edition);
- Revised "Overview of Test Methods" (see 5.1, 5.1 of the.2012 edition);
- Modify "Conventional Voltage Durability Test" (see 5.2.1, 5.2.1 of the.2012 edition).

This standard uses the translation method equivalent to adopting IEC 61251.2015 "Electrical Insulation Materials and System AC Voltage Durability Assessment".

The Chinese documents that have a consistent correspondence with the international documents normatively cited in this standard are as follows.

---GB/T 29310-2012 Guidelines for statistical analysis of electrical insulation breakdown data (IEC 62539.2007, IDT)

This standard was proposed by the China Electrical Equipment Industry Association.

This standard is under the jurisdiction of the National Standardization Technical Committee for Electrical Insulation Materials and Insulation System Evaluation (SAC/TC301).

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Introduction

This standard covers insulating materials and systems. Voltage endurance tests are used to compare and evaluate electrical insulation materials and systems. Sure electrical

The AC voltage durability of edge materials and systems is very complicated, because the voltage durability test results are affected by many factors. This standard is proposed to

A unified method for simple design and analysis of voltage durability tests.

Electrical insulation materials and systems

AC voltage durability assessment

1 Scope

This standard describes many factors related to electrical insulation materials and system voltage durability tests, describes voltage durability curves, and lists

The test method and its limitations are defined, the terminology of voltage durability is defined, and the sinusoidal intersection of the insulation material and the system is evaluated based on the test results.

Guidelines for Durability of Streaming Voltage.

This standard is applicable to the durability assessment of insulating materials and systems under AC voltage with a voltage frequency of 20 Hz to 1000 Hz.

The test principles used in this standard are also applicable to other waveform voltages.

2 Normative references

The following documents are essential for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

IEC 62539 Guideline for Statistical Analysis of Electrical Insulation Breakdown Data (Guide for the statistical analysis of electrical insulationbreakdowndata)

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

Voltage endurance; VE

Measurement of the ability of solid insulating materials and systems to withstand voltage.

Note. This standard only considers AC voltage.

3.1.2

Life

Dielectric breakdown time.

3.1.3

Voltage endurance coefficient; VEC

The reciprocal value of the slope of the straight line in the double logarithmic voltage durability graph.

3.1.4

Specimen

Used to evaluate one or more physical characteristics, a representative test object.

3.1.5

Sample

Nominally identical samples randomly selected from the same production batch.

3.2 Symbol

The following symbols apply to this document.